Name: _____ ID #: _____

1) A digital scale that provides weights to the nearest gram up to 1 kilogram is used. If *A* denotes the event that the weight exceeds 11 grams, and *B* denotes the event that the weight is less than or equal to 20 grams.
   a) What is the sample space for this experiment?

   b) What is $A \cup B$?

   c) Are A and B mutually exclusive?Explain.

2) A lot of 100 semiconductor chips contains 10 that are defective. Two are selected at random and without replacement. What is the probability that the second chip selected is defective?

3) An inspector working for a manufacturing company has a 98% chance of correctly identifying defective items and 0.5% chance of incorrectly classifying a good item as defective. The company has evidence that 1% of the items its line produces are defective.
   a) What is the probability that an item selected for inspection is classified as defective?

   b) If an item selected art random is classified as non-defective, what is the probability that it indeed good?